

Hemodynamic and Pressor Responses to Combination of Yoga and Blood Flow Restriction

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ABSTRACT

Blood flow restriction (BFR) training has been increasingly incorporated into a more common activity of daily exercise (e.g., yoga). However, BFR may increase blood pressure and myocardial oxygen demand by augmenting vascular resistance. Yoga is characterized by systemic isometric exercises and accompanied by marked pressor responses. This raises the concern of exaggerated cardiovascular responses when yoga is performed with BFR. **PURPOSE:** To determine the impact of a combination of yoga and BFR on cardiovascular responses. **METHODS:** Twenty young healthy participants (M =10, F=10) performed 20 yoga poses with and without BFR bands placed on both legs. Beat by beat blood pressure and heart rate were measured using finger plethysmography during the yoga exercise. Blood lactate concentration, flow-mediated dilation (endothelium-dependent vasodilation), and cardioankle vascular index (arterial stiffness) were measured before and after the yoga exercise. **RESULTS:** At baseline, there were no significant differences in any of the variables between the BFR and non-BFR conditions. Systolic and diastolic blood pressure and heart rate increased significantly in response to the various yoga poses ($p<0.01$). But there were no significant differences between the BFR and non-BFR conditions. In general, hemodynamic responses were more pronounced during more difficult yoga postures (e.g., Crescent Lunge, Half Moon, Chair Pose, and Downward Facing Dog). Rate-pressure products increased significantly during yoga exercises with no differences between the two conditions. Rating of perceived exertion (RPE) was not different between the conditions. Blood lactate concentration was significantly greater after performing yoga with BFR bands ($p=0.007$). Cardioankle vascular index decreased similarly after yoga exercise in both conditions while flow-mediated dilation remained unchanged. **CONCLUSION:** The use of blood flow restriction bands in combination with systemic isometric exercise like yoga did not result in marked hemodynamic and pressor responses.